

REMARKS

Claims 1, 3-18, 29, 32-41, 53-56 and 58-59 remain pending in the present application.

The 35 U.S.C. §102(b) Claim Rejections

Claims 1, 3-6, 8-9, 11-12, 16, 18, 29, 32-35, 37, 41, 54-56, 58 and 59 stand rejected pursuant to 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 4,731,545 to Lerner et al. (hereinafter "Lerner"). Applicants respectfully traverse these rejections for at least the following reasons.

Lerner teaches a power conversion unit attached to the outlet of a pressurized fluid system, such as, the nozzle of a garden hose. As illustrated in FIGs. 1 and 2 of Lerner, the body (10) of the power conversion unit includes an impeller housing (11) with an impeller (36) located therein. Attached to the impeller housing is a generator (16). An impeller shaft (40) couples the impeller with an armature in the generator, such that rotation of the impeller rotates the armature. (Col. 6 lines 35-37) Rotation of the armature creates a potential difference (power) that is supplied to jacks (19) on the housing. (Col. 6 lines 37-39)

The impeller is rotated by pressurized fluid flowing through a passageway (38) in the housing and striking the impeller. (Col. 4 lines 20-27) The speed of the stream of pressurized fluid flowing into the passageway is adjusted with a throttle valve 44 to change the speed of the impeller. (Col. 6 lines 8-14) The throttle valve is a rotary valve that may be manually rotated with a member handle (62) to adjust the narrowness and thus the speed of the stream of pressurized fluid. (Col. 4 lines 48-58 and Col. 6 lines 8-14)

Applicants' claim 1 discloses a hydro-power generation system that includes a turbine nozzle with a plurality of struts that operate to direct a flow of fluid to a rotor at increased velocity to rotate the rotor. Claim 3 discloses that the turbine nozzle directs the flow of fluid to achieve a predetermined angle of incidence on the rotor. The Examiner has asserted that the throttle valve of Lerner comprises a tip and a plurality of struts to direct the flow of liquid and achieve a predetermined angle of incidence on the rotor. Applicants respectfully disagree.

Lerner teaches a rotary valve to control the speed of the liquid, but fails to teach, suggest or disclose a turbine nozzle with a plurality of struts to direct a flow of fluid. In fact, Lerner teaches that the stream of fluid is simply narrowed and broadened by rotating the throttle valve. Clearly, the throttle valve of Lerner does not include struts to direct the flow of fluid as disclosed

by claim 1. Lerner also does not teach directing the flow of fluid with the turbine nozzle to achieve a predetermined angle of incidence as disclosed by claim 3. Lerner teaches only that pressurized fluid will flow through the passage at varying velocity based on rotation of the rotary valve similar to a garden hose to narrow and broaden the passageway through the rotary valve. (Col. 4 lines 54-58) Accordingly, the narrowing and broadening of the passageway with a rotary valve as taught by Lerner will affect the angle of incidence of the fluid upon the rotor thereby teaching away from the predetermined angle of incidence disclosed by claim 3.

The Examiner has also postulated that Lerner teaches that the rotor includes a helical ridge as disclosed by claim 5. A "helical" is defined as "relating to, or having the form of a helix; - broadly: *SPIRAL*." Websters Ninth New Collegiate Dictionary 562 (1990). Lerner discloses that the impeller includes blades (37) that may be curved (Col. 4 lines 18-20) or straight (Col. 6 lines 63-64), but does not disclose blades in the form of a helical ridge as disclosed by claim 5.

Col. 2 lines 37-45 of Lerner were cited by the Examiner as teaching that the generator produces alternating current as in claims 9 and 32, and that the alternating current is rectified to direct current as in claims 11 and 33. Applicants are unable to identify any teaching in Lerner of alternating current or rectification of alternating current as in claims 9, 11, 32 and 33. In fact, Lerner teaches only that the generator is a direct current generator. (Col. 5 lines 57-61)

Applicants' claims 16 and 41 disclose that the hydro-power generation system operates without flux concentrators to accelerate to a first RPM to initially energize an ultraviolet (UV) light source with a first voltage. In addition, claims 16 and 41 disclose that continued energization of the UV light source is operable to slow rotation of the hydro-power generation system to a second RPM and produce a second voltage. As discussed in the specification on page 27 lines 20-25 and page 28 lines 1-23, the omission of flux concentrators in Applicants' invention beneficially reduces the rotational load associated with back electromagnetic force (EMF). Reduction of the back EMF provides relatively quick acceleration to a first RPM to initially energize a UV light source with a first voltage when liquid first begins to flow. Further, the continued energization of the UV light source is operable to reduce rotation to a second RPM and produce a second voltage as disclosed in claims 16 and 41.

Lerner fails to teach a generator without flux concentrators for energizing a UV light source. Not only does Lerner fail to positively recite the absence of flux concentrators in a

generator, but also fails to even mention a UV light source as a load. Lerner actually teaches away from operating a UV light source as a load since the generator of Lerner is a direct current generator (Col. 5 lines 57-61) and UV light sources operate with alternating current. (see Applicants' specification p. 26 lines 19-22) In addition, Lerner fails to teach operating the generator at a first voltage resulting from a first RPM to initially energize a UV light source and a second RPM and corresponding second voltage to continuously energize the UV light source as in claims 16 and 41.

The Examiner has also postulated that liquid is supplied to the Lerner device from a fluid treatment system as disclosed by claim 18. As discussed in the background section of Applicants' specification, fluid treatment systems are used to purify drinking water by removing some or all of the contaminants found in drinking water supplies. (Pg. 2 lines 3-12) Clearly, the use of Lerner's power conversion unit on a firemen's hose (as asserted by the Examiner) does not utilize a supply of liquid from a water treatment system as disclosed by claim 18.

The Examiner has further asserted that the methods of use described by claims 29, 32-35, 37, 58 and 59 would be inherent to one of ordinary skill in the art in view of Lerner. Applicants' again respectfully disagree.

Amended claim 29 discloses a method of supplying electricity using a flow of fluid. The method includes directing the flow of fluid to the rotor with a turbine nozzle that includes a tip and a plurality of struts to increase the velocity of the flow of fluid. As previously discussed, Lerner does not teach a turbine nozzle that includes a plurality of struts. Claim 37 describes circulating fluid to a bearing to cool and lubricate the bearing. Lerner fails to teach cooling and lubricating bearings with liquid as disclosed by claim 37. As previously discussed, the methods of claims 32 and 33 are also not taught by Lerner.

Claim 58 discloses the initial act of adjusting the struts to control the velocity of the flow of fluid. As previously discussed, Lerner teaches rotating a throttle valve to control the velocity of fluid. In addition, Lerner teaches that the throttle valve is adjusted after supplying the flow of fluid to inlet of the housing and after a rotor positioned in the housing is rotating (Col. 6 lines 29-37), instead of adjusting struts as an initial act as disclosed by claim 58.

Claim 59 also discloses the initial act of adjusting the struts to adjust at least one of angle of incidence, efficiency, turbulence and pressure drop. Lerner fails to teach any significance with regard to the angle of incidence, efficiency or turbulence since Lerner teaches the rotary

valve may be freely adjusted during operation of the power conversion unit. (Col. 6 lines 31-35) With regard to pressure drop, Lerner teaches only that positioning the impeller in the passageway does not significantly diminish the force and stream of fluid emerging from the power conversion unit. (Col. 4 lines 27-31) Accordingly, Lerner does not teach the initial act of adjusting struts to adjust at least one of angle of incidence, efficiency, turbulence and pressure drop as described by claim 59.

For at least the foregoing reasons, Applicants respectfully request the withdrawal of the 35 U.S.C. §102(b) rejection of claims 1, 3, 5, 9, 11, 16, 18, 29, 32-33, 37, 41, 58 and 59. In addition, the withdrawal of the 35 U.S.C. §102(b) rejection of dependent claims 3-18, 53-56 and dependent claims 30-41, 58-59 is respectfully requested since these claims depend from independent claims 1 and 29, respectively.

#### The 35 U.S.C. §103(a) Claim Rejections

Claims 7, 36 and 53 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Lerner in view of U.S. Patent No. 4,740,711 to Sato et al. (hereinafter "Sato"). The Examiner has asserted that the stator fixedly positioned to surround a housing and a rotor positioned in the housing as disclosed by claim 7 is obvious in view of Lerner and Sato. In addition, the act of channeling the fluid to an outlet with a plurality of exit guide vanes (claim 36) or a stator that includes a plurality of exit guide vanes and a fin for channeling fluid to an outlet (claim 53) was deemed obvious by the Examiner in view of the combination of Lerner and Sato.

In addition to the previously discussed reasons regarding Lerner, the Sato patent fails to teach, suggest or disclose a stator external to a housing as disclosed by claim 7. Instead, in Figs. 1, 2 and 4, Sato teaches a rotor (12) with a stator (13) positioned to surround the rotor with nothing in between. In Fig. 3, Sato teaches positioning a seal cylinder (33) on the inner surface of the stator core along with end rings (31 and 32) such that the stator is sealed from entry of steam or gas. (Col. 3 lines 44-54) The rotor is opposite the seal cylinder and is in liquid communication with steam or gas flowing through the steam turbine or gas turbine casing (11). Clearly, the stator does not surround the gas turbine casing in which the rotor is positioned. In

fact, the stator of Sato does not surround any housing in which a rotor is rotatably positioned as disclosed in claim 7.

Sato also teaches the addition of guides (17 and 18) following a reducer (16) to straighten the flow of steam or gas. (Col. 3 lines 9-15) As illustrated in the figures of Sato, the guides are adjacent to the walls of the reducer to reduce turbulent flow at the outlet of the steam or gas turbine casing. Sato does not teach, suggest or disclose the addition of exit guide vanes and a fin for channeling fluid out of a housing as disclosed by claims 36 and 53. In fact, Sato fails to teach, suggest or disclose a fin as disclosed by claim 53 at all.

Claims 14 and 15 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Lerner in view of common knowledge in the art. In addition to the previous reasons discussed with reference to Lerner, Applicants contend that the use of taps or series and parallel coils is not well-known in a hydro power generation system to energize and maintain energization of an ultraviolet (UV) light source. Applicants respectfully disagree that it is common knowledge to use taps within a hydro-power generation system as described by claim 1 in connection with a UV light source to provide different levels of electricity to initially energize, and then continue to energize the UV light source as disclosed by claim 14. Applicants also disagree that it is common knowledge to utilize a plurality of coils in the hydropower generation system of claim 1 with a UV light source for dynamically switching from a series to a parallel configuration to provide a first voltage to initially energize the UV light source and a second voltage to continue energization of the UV light source as disclosed by claim 15. Accordingly, Applicants respectfully request the Examiner to provide evidence in support of his position. (see MPEP section 2144.03)

Claims 38-40 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Lerner in view of common knowledge in the art. Applicants respectfully traverse these rejections for the reasons previously discussed with regard to Lerner as well as the following reasons.

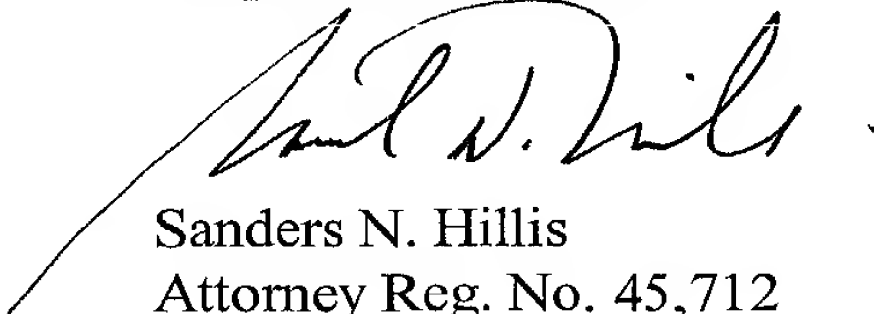
Applicants respectfully assert that it is not common knowledge in the art to utilize the method described by claim 29 to dynamically adjust the voltage and current levels of the electricity with a plurality of coils in response to initial energization and continued energization of a UV light source as disclosed by claim 38. Nor is switching the coils between a parallel configuration and a series configuration in response to initial energization and continued

energization of a UV light source, as described in claim 39, common knowledge in the art. It is also not common knowledge in the art to connect the coils with a plurality of taps in response to initial energization and continued energization of a UV light source as described in claim 40. Applicants respectfully request the Examiner to provide evidence in support of his position that describes methods of generating electricity and energizing a UV light source as described in claims 29 and 38-40. (See MPEP § 2144.03) Since claims 38-40 are not common knowledge in the art, Applicants respectfully request the withdrawal of the 35 U.S.C. §103(a) rejection of these claims.

For at least the foregoing reasons, independent claims 1 and 29 are patentably distinct over the prior art of record alone or in combination. Further, the dependent claims depending from claims 1 and 29 are also patentable over the prior art of record for the same reasons, or for at least the reasons Applicants have set forth above.

The application is believed to now be in condition for allowance, which is respectfully requested. Should the Examiner deem a telephone conference to be beneficial in expediting allowance of this application, the Examiner is invited to call the undersigned attorney at the telephone number listed below. No additional fees are believed to be required at this time. However, should any additional fees be deemed necessary, please charge such fees to Deposit Account No. 23-1925.

Respectfully submitted,

  
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